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## 7. A REPORT ON THE PRESENCE OF THREE AVIAN LICE (INSECTA: PHTHIRAPTERA) IN DIFFERENT REGIONS OF NORTH-EAST INDIA

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### Introduction

North-east India is one among the 12 mega biodiversity hotspots of the world. Of the 1,200+ known species of birds found in India about 60% have been reported from this region, most being passeriformes. These magnificent birds also act as host for many parasites consisting of a huge proportion of extant species (Price 1980). Among the ectoparasites, avian lice have a significant place and many birds in the wild are often infected by them (Keymer 1972). Parasitic lice (Phthiraptera) are the only major group of insects where all members are permanent parasites and spend their entire life on an animal host. Some show no habitat preference while most are host specific, feeding on only one or a few closely related species of animal hosts. They complete their entire life cycle from egg to adult on a single host species (Foster 1969) and survive only for a few days if separated from it. This association makes lice a suitable model system to study co-speciation between host and parasite (Johnson and Clayton 2003). Information on occurrence of avian lice and their host species in north-east India is scanty. Therefore, thorough and elaborate survey is required to report bird lice and their host species in the region. The present paper reports chewing lice parasitizing Tree Sparrow *Passer montanus* and Yellow-breasted Bunting *Emberiza aureola*.

### Methodology

Tree Sparrows were captured using mist-net from different parts of Shillong, Meghalaya (25° 34' N; 91° 53' E)

during different months in 2008-09. The Yellow-breasted Buntings are winter visitors to North-east India and were procured from Manipur (24° 35' N; 93° 59' E) during October-February 2008-09. Avian chewing lice were collected by visual examination of the areas around eyes, ears, head, back, legs, tail, body and wing feathers, particularly under surface of the remiges and wing coverts, systematically. Special attention was given to the ventral body feathers, skin and around the vent. The parasites were removed using a fine forcep, the tip dipped in alcohol, and preserved in 70% alcohol (Elizabeth 1951). They were then mounted on microscope slides for observation. Taxonomic identification of the lice was based on Ansari (1958), Hellenthal and Price (2003), Price *et al.* (2003). The taxonomy of birds follows Rasmussen and Anderton (2005).

We recorded three species of ectoparasitic chewing lice from two species of passerines, namely Tree Sparrow *Passer montanus* and Yellow-breasted Bunting *Emberiza aureola*. Two species of lice parasitized on sparrows and one species on buntings.

### Chewing lice on Tree Sparrow *Passer montanus* Linn.

1. Family: Menoponidae

Genus: *Myrsidea* (Waterston)

**Diagnostic characters:** Head and thorax were broad and large in proportion to abdomen. Spines were absent on the ventral surface of the flatly rounded head. Head seta

23 absent. Temporal setae 26 and 27 not closely associated. No preocular slit or notch. Asters of spine-like setae present, sternites have 4 strong spines. Sclerite in the genital sec.

***Myrsidea balati* (Macháček)**

The specimen was collected from a Tree Sparrow *Passer montanus* Linnaeus. Out of 60 birds examined, 25 were infested with 72 lice, which were collected for the study.

**Place of collection:** INDIA: Meghalaya: Different parts of Shillong, East Khasi Hill district.

**Known host:** *Passer montanus* L. (Passeriformes: Passeridae).

**Remark:** This is a host specific ectoparasite; it feeds on the feather and blood. This is the first report from Meghalaya, India.

2. Family: Philopteridae (Burmeister)

Genus: *Sturnidoecus* (Eichler)

**Diagnostic characters:** Broad temples, abdomen broadly oval, sub lateral row of normal setae clearly present in adult male and female, unclear ventrally, female subgenital plate have posteriorly pointed pigmented portion, distinctive male genitalia, a small additional plurite is present in segment V. The calyx is moderately developed.

***Sturnidoecus ruficeps* (Nitzsch in Giebel)**

The specimen was collected from a Tree Sparrow *Passer montanus* Linnaeus. Out of the 60 birds examined, 20 were infested with 33 lice, which were collected for the study.

**Place of collection:** INDIA: Meghalaya: Different parts of Shillong, East Khasi Hill district.

**Known host:** *Passer montanus* L. (Order Passeriformes: Passeridae)

**Remark:** This is a host specific ectoparasite; it feeds on feathers. Reported for the first time from Meghalaya, India.

**Chewing lice on Yellow-breasted Bunting**  
***Emberiza aureola* Pallas**

1. Family: Ricinidae (Neumann)

Genus: *Ricinus* (De Geer)

**Diagnostic characters:** Mouth inferior with two external lips and two hook-like mandibles. Tarsi distinct and articulated with two hooks. Head slightly elongated and articulated with prothorax by a rod-like structure. Two simple approximated eyes on each side of the head. Jaws with small palpus hidden by the lower lips.

***Ricinus fringillae* (De Geer)**

The specimen was collected from a Yellow-breasted Bunting *Emberiza aureola*. Out of 48 birds examined, 16 infested with lice, which were collected for the study.

**Place of collection:** INDIA: Manipur, Tantha, Thoubal district.

**Known host:** No specific host. It has been reported on a number of bird species: *Bombycilla* (Bombycillidae); *Amphispiza*, *Emberiza*, *Junco*, *Melospiza*, *Passerella*, *Pipilo*, *Plectrophenax*, *Poocetes*, *Spizella*, *Zonotrichia* (Emberizidae); *Acanthis*, *Carduelis*, *Carpodacus*, *Fringilla* (e.g., *F. coelebs*), *Pyrrhula* (Fringillidae); *Riparia* (Hirundinidae); *Anthus*, *Motacilla* (Motacillidae); *Parus* (Paridae); and *Passer* (Passeridae) among others.

**Remarks:** This species has no specific host and has been reported in representatives of several species of Passeriformes. This parasite has a rasping mouthpart and feeds entirely, if not exclusively, on the blood of its avian hosts. This has been reported for the first time in the present host from Manipur, India.

**Discussion**

Analysis of the present findings in light of available information on Indian chewing louse fauna reveals that this is the first report of three species of chewing lice on birds in the wild in North-east India. Members of genus *Myrsidea* and *Ricinus* (Foster 1969) are reported to be blood feeders, whereas those of genus *Sturnidoecus* are feather feeders. *Myrsidea balati* was reported for the first time by Macháček (1977) from its typical host *P. montanus*; it is a host specific ectoparasite. Other species of *Myrsidea* have been reported from different parts of India: *Myrsidea agarwali* on *Garrulus lineatus lineatus* (Khan et al. 2009); *M. sehri* on *G. l. lineatus* (Ansari 1951). *Sturnidoecus ruficeps* is a typical parasite of *Passer montanus*. It was earlier reported by Bechet (1961) as *Penenirmus ruficeps* along with its taxonomic history. Negru (1963) reported *S. ruficeps* from *Passer domesticus*. But, according to Price et al. (2003), *S. ruficeps* was found only on *Passer montanus*. The presence of chewing louse *Sturnidoecus* has also been reported in other birds, e.g., *Sturnidoecus sturnion* on *Sturnus vulgaris* L., *Sturnidoecus pastoris* on *Sturnus roseus* (Adam et al. 2009). The genus *Sturnidoecus* at present has 70 valid species identified so far that parasitize only the birds of Order Passeriformes. It is one amongst the most speciose genera of Ischnocera. *Ricinus fringillae* has been hitherto reported from 47 species of avian hosts (Price et al. 2003; Adam et al. 2009). It was also reported from host *Emberiza citrinella* (Bechet 1956, 1962; Negru 1962). Many workers reported *Ricinus fringillae* under various synonyms along with the host,

e.g., *Ricinus bombycillae* on *Bombycilla garrulus* (Bechet 1961, 1962; Negru 1962); *Ricinus irascens* on *Fringilla coelebs* (Bechet 1961, 1962); *Ricinus japonicus* on *Anthus spinoletta* (Negru 1959; Bechet 1961, 1962); *Ricinus subpallidus* on *Prunella collaris* (Negru 1963). Though *Myrsidea ananthakrishnani* (Rai 1978), *M. assamensis* and *M. manipurensis* (Tandan 1972) have been reported from North-east India, more research is required to document the avian louse in this region.

## ACKNOWLEDGEMENTS

We are grateful to Dr. A.K. Saxena, Associate Professor, Department of Zoology, Government Raza P.G. College; Dr. Daniel Gozaiez Acuna, Faculty de ciencias veterinarias, Universidad de concepcion, Casilla, Chile, and Dr. Cicchino Armando Conrado, Laboratori de Artrópodos, Departamento de Biología, Universidad Nacional de Mar del plata, Argentina, to identify the lice species and financial assistant from DST, New Delhi is highly acknowledged.

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## 8. REDISCOVERY OF *MURDANNIA STRIATIPETALA* (COMMELINACEAE) – A LITTLE KNOWN SPECIES FROM SOUTHERN INDIA WITH A NOTE ON ITS IDENTITY AND DISTRIBUTION

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*Murdannia* is a pantropical genus belonging to Family Commelinaceae with c. 50 species residing in warm temperate and a variety of open mesic or occasionally aquatic habitats, rarely in forests (Faden 1998, 2000). In India, the genus is represented by 24 species (modified after Karthikeyan *et al.*

1989) of which four species, one subspecies and one variety are endemic to Peninsular India and many of which are restricted to southern peninsular India (Ahmedulla and Nayar 1987).

While working on the revision of Indian Spiderworts, during exploration of localities, one of the authors came across